(No Model.)

S. R. PERRY.

PIANO ACTION.

No. 457,666. Patented Aug. 11, 1891.

Fig. 1.

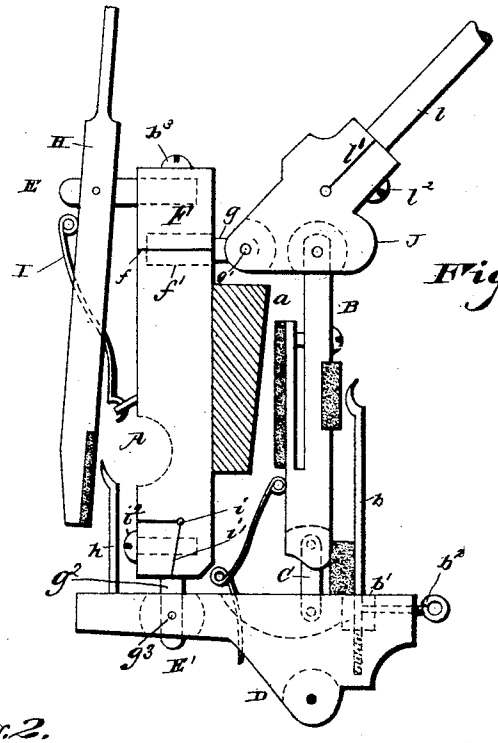


Fig. 3.

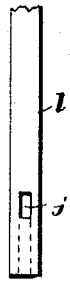


Fig. 2.

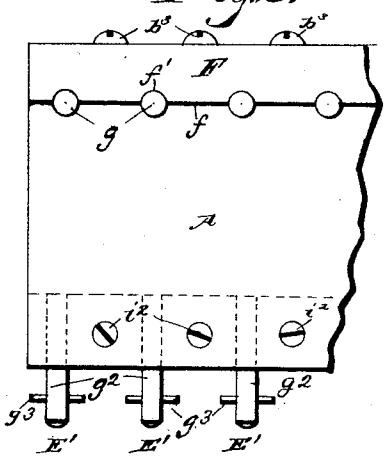


Fig. 4.

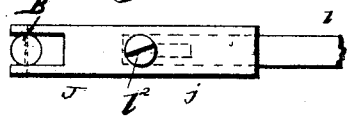
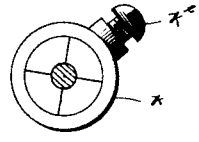


Fig. 5.



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UNITED STATES PATENT OFFICE.

SAMUEL R. PERRY, OF SCRANTON, PENNSYLVANIA.

PIANO-ACTION.

SPECIFICATION forming part of Letters Patent No. 457,666, dated August 11, 1891.

Application filed March 25, 1890. Serial No. 345,214. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL R. PERRY, a citizen of the United States of America, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Piano-Actions, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of my invention is to cheapen the cost of construction as well as to promote the durability of piano-actions and facilitate the assembling of the different parts and by dispensing with the use of flanges for pivots, adopting dowels or flat wood or metal pivots instead of the usual flanges used to connect the hammer-butts, dampers, &c., to the action-rail, so that either part forming a pivot may be glued solid into the action-rail or left free to be adjusted with relation to the strings of the piano.

A further object is to make the hammer-shank adjustable and removable at pleasure, so that the hammers may be raised and lowered with relation to their points of contact upon strings, more especially as to the extreme treble, where nicety of adjustment is required to obtain the correct stroke or hammer line, and for the further purpose of twisting the hammers to strike the strings where, from dampness and springing out of place, they may require resetting; and to attain these ends the invention consists in the construction and novel combination of parts, as will appear by the following description and accompanying illustrations, in which—

Figure 1 is a partly-sectional elevation of an upright-piano action embodying my invention. Fig. 2 is a front elevation in detail of the action-rail. Fig. 3 is a detailed broken view of one of the hammer-shanks. Fig. 4 is a front elevation in detail of the hammer shank and butt and the long link connection; and Fig. 5 is a modification of the hammer shank and butt, which will be fully described hereinafter.

I employ the action-rail A, which is composed of several parts, to the face of which is secured the cross-banded longitudinal strip *a* to prevent it from springing, and so shaped as to form a check to hold the long link B against it when the key is held down, the short link C being pivoted to the actuating-lever D.

The long link B and short link C are the same in construction and principle as described in my patent No. 406,405, of July 2, 1889, and therefore need not be referred to herein.

In connection with the above-named links I do, however, employ a post *b*, which is adjustable, composed of metal, having its upper spoon-bowl-shaped end adapted for contact with and disengagement from link B for the purpose of unlocking the links B and C at the required time. The post *b* is screwed at its lower end into the lever D and extends through a much larger recess *b'* than itself into the lever D, and is engaged by a screw b^2, working in one end of said lever D, in order to permit of the adjustment of said post to effect the throw-off of links B and C and regulate the check *a* against the action-rail A.

The action-rail A has applied to its upper end a longitudinal strip F, connected thereto by ordinary wood-screws b^3, a narrow opening or space *f* between rail-strip and rail, however, being provided, so as to pinch the dowels, as will be explained farther on.

At intervals apart corresponding to the action-hammers is provided in the meeting edges of the rail A and strip F a series of horizontal openings or recesses *f'*, which receive dowels *g*, with pivots *g'*, said openings being made a shade less in diameter than the thickness of dowels, in order to effect a binding action upon said dowels or hangers. These pivots or dowels *g* are clamped in position by means of the screws b^3, which pass through strip F and engage the action-rail A intermediately of said dowels or hangers. The pivots or dowels effect connection between the action-rail and the hammer-butts J, the center pin or pivot *g'* passing through said dowels and the hammer-butts, which are recessed to receive said dowels, as shown.

In order to change the dowels and pivots, the screws b^3 may be slackened, and after they are adjusted to the required position may be again tightened to hold them firmly in place, or such of them as are not glued

solid in position, if so required—as, for instance, in the damper-levers described farther on.

The strip F can be divided by cutting it into short sections, in order to facilitate the removal of the same, if desired, or any part of it. Projecting from the opposite side of the strip F are a series of dowels and pivots E, glued into holes bored into the strip F, upon which are pivoted the damper-levers H, suitably connected thereto, each of which may be held in engagement with its respective string or loop by means of the spring I, which is passed obliquely through a passage in said damper-lever and connected at its one end to the outer side of the damper-lever H and at its other end by a loop or string or other suitable means to the action-rail A.

The lower ends of the damper-levers H are acted upon by the post or spoon h of the lever D. In the bottom edge of the action-rail A is also a series of apertures or sockets i, through which extends a saw-kerf or longitudinal slot i', common to all of said sockets, and terminating at their bottom, while into the said sockets are fitted a series of dowels E′, forming hangers g^2, having pivots g^3 for the levers D. They are bored a trifle less than the thickness of the dowels E′ to effect the binding action of their side walls upon said dowels or hangers, and engaging the action-rail intermediately thereof are wood-screws i^2 to provide for the effectually clamping in place of said dowels. Another saw-kerf may be made in the outer side of the rail A, near to the bottom of the sockets, and cut so nearly off as to form a sort of hinge to assist in the tightening of said dowels. The dowels may, however, be glued into the strip solid, if desired.

l are the hammer-shanks, which are held in the upper ends of the hammer-butts J by slotted sockets l' and screws l^2, the same as dowels or hangers E′ are held in place in the action-rail A. These hammer-shanks are provided with mortises j, which are engaged by set or holding screws l^2, to provide for their vertical adjustment and to cause the hammers to fall directly against the strings. The mortises j in the hammer-shanks may, as indicated in dotted lines, be extended to their bottom ends, thus forming a slot. The hammer-shanks may also be clamped in position in the hammer-butts, as shown by Fig. 5, wherein the hammer-butt may be in tubular split sections encompassed by a collar or ring k, engaged by a screw k^2, thereby leaving the hammer solid and easily adjustable.

By means of the above arrangement I am enabled to dispense with flanges ordinarily in use by using, as described, dowels—square, round, or otherwise shaped—of wood or metal, and which may be glued in place solidly or left loose in part in certain places in such manner as to allow of turning in any desired direction, in order to square the various levers to make the proper stroke at right angles or square from the action-rails and in line with the piano-strings.

As shown in Fig. 6, flat strips of brass or wood may be used instead of the cylindrical dowels, in which case the flat strips will be placed into saw-kerfs made suitably into the action-rail, and are supported and held solidly in place by strip F, as above described.

Fig. 7 is a front view of the action-rail A, showing holes for dowels or pivots to support either hammer-butts or, as shown in Fig. 1, the damper-levers, which are glued solidly into the rail, as it will in practice not be necessary to have all the dowels made adjustable in order to square the stroke with the action-rail.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The action-rail provided with suitable apertures at regular intervals to suit the hammers, and movable parts for the purpose of securing dowels or pivots, as shown and described.

2. In a piano-action, the action-rail having applied to its upper edge a strip, in the meeting or opposite edges of said rail and strip a series of sockets or recesses, and binding-screws adapted to cause the side walls of said recesses or sockets to have a binding action upon the pivots or dowels therein, substantially as shown and described.

3. The action-rail having in its bottom edge a series of slotted sockets to receive dowels or pivots forming pivots for the actuating-lever, and screws adapted to cause the side walls of said socket to bind or clamp said pivots or dowels, substantially as shown and described.

4. In a piano-forte action, the dowel-pivots attached to the hammer-butt and action-rail, substantially as shown and described.

5. The dowel-pivots pivoted in the actuating-lever and depending from the action-rail, substantially as shown and described.

6. The dowel pivoted to the damper-levers and connected to the strip of the action-rail, substantially as shown and described.

7. The slotted hammer-butts having the slotted or mortised sockets, in combination with the hammer-shank and the binding-screws engaging said hammer-butts, substantially as shown and described.

8. The combination, with the damper-lever and the action-rail, of the spring passed through a passage in said lever and connected at one end thereto and at its other end to said rail, substantially as shown and described.

9. The adjustable post of the actuating-lever operated by the adjusting-screw, substantially as shown and described.

10. In a piano-forte action, the jack hav-

ing the tongue on the front face thereof carrying the strip, substantially as shown and described.

11. In a piano-forte action, the jack having a tongue formed in its front face adjustable by means of a screw, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

SAMUEL R. PERRY.

Witnesses:
J. R. PERRY,
WM. J. TREMBATH.

Corrections in Letters Patent No. 457,666.

It is hereby certified that in Letters Patent No. 457,666, granted August 11, 1891, upon the application of Samuel R. Perry, of Scranton, Pennsylvania, for an improvement in "Piano-Actions," errors appear in the printed specification requiring correction, as follows: In line 89, page 2, the comma after the word "hammers" should be stricken out and a comma should be inserted after the word "parts;" and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 12th day of January, A. D. 1892.

[SEAL.]

CYRUS BUSSEY,
Assistant Secretary of the Interior.

Countersigned:

W. E. SIMONDS,
Commissioner of Patents.

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